

001-000000141

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-1 SEP 2010



RESOLUTION No.

THE STATE COMPTROLLER GENERAL

WHEREAS:

[OFFICE OF THE STATE COMPTROLLER GENERAL]

- I. As result of the analysis of the special engineering inspection conducted on the contract addendums entered into between HIDROPASTAZA S.A. and Consorcio Odebrecht-Alstom-Va-Tech as part of the "EPC" Detail Engineering, Supplies and Construction Contract for the San Francisco Hydroelectric Power Plant project in the Baños canton, Tungurahua province, under the auspices of HIDROPASTAZA, S.A., covering the period between November 1, 2003, and September 15, 2008, a penalty of **USD 4,700,000** was assessed against the **Consorcio Odebrecht-Alstom-Va-Tech**, through its legal representative, because the company he represents failed to comply with the technical specifications stipulated in Attachment 1 of Volume 3 of the second contract amendment to the concession contract regarding the cladding for the headrace tunnel and the surge shaft, showing that the additional expenses made by the Construction Consortium to implement new and improved types of supports found during the tunnel excavation, as well the alleged losses of efficiency in excavation, were made based on an erroneous technical foundation.

In official letter OEC/PHSF/DP/0132/2006 dated July 10, 2006, the Construction Consortium's Project Director requested a second price adjustment to the EPC contract based on the additional costs generated by the geological/geotechnical conditions found in the various structures excavated, both on the surface and underground, which adversely differed from the conditions established in Attachment 1 to the second contract amendment to the concession contract. In addition, it pointed out that in the first adjustment requested on March 31, 2006, in letter OED/PHSF/DP/050/2006, the headrace tunnel structure between PK 9+830 and 0+090 was not included in the aforementioned request because it was still being excavated.

The conditions found during excavation of this tunnel have been substantially different from those considered, especially for the implementation of the type V support, which implies the placement of voussoirs, forcing the reconfiguring of the prefab manufacturer and the purchase of supplies.

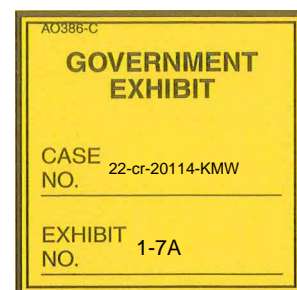
On the other hand, it was established that this situation also represents a loss of excavation efficiency because of the procedures necessary to begin placing the voussoirs, the placement of additional anchoring bolts, and the use of

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Accountability Directorate. Telephone: 398-7360
Main Office: Av. Juan Montalvo e4-37 y Av. 6 de Diciembre. Quito-Ecuador



shotcrete, stating also that these services were in addition to those provided for within the scope of Addendums 6 and 7.

The facts noted caused the invoicing to fall out of sequence, decompensating for the instances of indirect costs on the civil engineering part of the contract, for which reason the Construction Consortium proposed making the second adjustment to the contract price.

Under number 1) of the referenced letter, the Construction Company submitted supporting documentation for the cases of geological/geotechnical variation found during the excavation of the headrace tunnel, which resulted in additional costs and in having to estimate the supports to be implemented along the stretch of the headrace tunnel still under excavation, using the TBM method between PKs 0+995.34 to 3+065.51 (progress as of June 30, 2006), without entailing a change in the geological/geotechnical conditions considered in the basic design. In number 2) it requested approval of a price adjustment to the EPC contract in the amount of USD 5,448,523.85, pursuant to Clause 6.2 Adjustment Events (b) number IX of the contract, geological/geotechnical [conditions] found in the headrace tunnel that adversely differ from the conditions considered in Attachment 1 to the second contract amendment to the concession contract and which generated additional costs for the construction company.

TABLE 2 – CONSTRUCTION COMPANY CLAIM – ADDENDUM No. 9		
ITEMS	ODEBRECHT CONSORTIUM	APPROVED BY CONSULTING Eng. Guy H. Boordeaux
Headrace tunnel (TBM) (ABSC 9+404.35 to 0+995.34)	5,448,523.85	5,448,523.85
Headrace tunnel D&B (9+830 to 9+404.35)		- 326,901.68
Headrace tunnel D&B (9+090 to 0+995.34)		- 419,697.68
TOTAL:	5,448,523.85	4,701,924.49
Amount due to geological risk in contract	0.00	0.00
Amount to be recognized in readjustment No. 2 (USD)	5,448,523.85	4,701,924.49

Table No. 2 shows the coordinates of the stretches affected by the proportionality adjustment factor and the total amount requested by the contracting company, as well as the amounts that, in the opinion of the consultant, should be recognized as compensation, which add up to the amount of USD 4,701,924.49.

In July 2006, Hidropastaza hired a consultant to conduct a technical analysis of the claim submitted by the Construction Consortium. Chapter 3 of said report contains the technical analysis describing the criteria adopted by the classification system, and the types of supports on the rock mass; it shows the analysis of the claim regarding amounts, price structure, and an evaluation of credits, and issues the following conclusion and recommendation:

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"Regarding the analyses and studies conducted, the proposed recommendation is for Hidropastaza S.A. to settle the second request for price adjustment to the EPC Contract with the Construction Consortium under the terms of Clause 6.2 b) IX, regarding the stretch of the Headrace Tunnel between PK 0+090 to 9+830, for the amount of USD 4,700,000 and, once the excavation for the Headrace Tunnel is finished and the total economic consequences of this structure resulting from the geological/geotechnical conditions found during the excavation can be evaluated, the economic consequences of said effects can be reviewed and the parties credited or debited as appropriate."

Hidropastaza S.A.'s legal counsel conducted a legal and contractual analysis on the matter of admissibility of the second adjustment given the variation of the geological/geotechnical conditions of the San Francisco Project (headrace tunnel), stating the following: *"It bears highlighting that the geological/geotechnical conditions pointed out by the Construction Consortium were determined and verified in situ by the real conditions present between PK 9+404.35 to 3+065.51, while the geological/geotechnical conditions present between PK 0+090 to 9+830 will have to be verified once the Headrace Tunnel excavation is finished. At that time, a new settlement of the amount contractually agreed upon will have to be done... Based on the foregoing, if the conditions established in number 6.2 b) of the Concession Contract are met, the payment is legal and contractually admissible..."*

On 9 July, 2008, through its Executive President, the Hidropastaza S.A. company filed an application with the Judge of the Ninth Civil Court of Baños requesting that, after learning of the construction flaws and other defects found in the headrace tunnel at the Hydroelectric Plant that forced its operations to stop, a judicial review be conducted for the purpose of determining the condition of the headrace tunnel, identifying the causes of the construction flaws, and evaluating the costs and time that it would take for repairs. Based on that request, the Judge accepted the proposed request and proceeded to appoint an Expert who, on July 11 and 19, 2008, conducted the corresponding inspection and confirmation regarding the condition of the project regarding the headrace tunnel. He submitted his report on July 25, 2008, in which the following observations are described:

- *"Types of bolstering of the tunnel. There are stretches that have been bolstered or improved in terms of their stability, and other stretches that have not received any bolstering.*
- *Bolstering with voussoirs. There are 13 stretches that have this bolstering, that is, 8% of the total tunnel.*
- *Bolstering with shotcrete. It has been reinforced with steel fibers and synthetic fibers, but only on those stretches in which the company determined that it was necessary. During the inspection, it was calculated that the total bolstered is less than 50% of the stretch perforated with the tunneling bore.*

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- *Bolstering with anchoring bolts.- Anchoring bolts following a particular order were observed along the entire tunnel for the purpose of providing more consistency to the rock mass. The sill is also regularly anchored to the floor with remainder anchoring bolts; however, the large amount of broken off bolt heads of various lengths is concerning. In addition, it was observed that the bolts are being systematically extracted from the tunnel sill."*

In report DIAPA-0039-2008 on the "special engineering examination of the damages caused to the cooling system and the water filters, and evaluation of the damages that caused the shutdown of the San Francisco Hydroelectric Plant," comment No. 1: Damages to the Headrace Tunnel and Surge Shaft, the following is highlighted as adversely affecting the project:

Headrace tunnel and upper surge shaft:

"Does not show areas of instability that could cause its collapse; however, the flaws could compromise the stability of the blocks, stones and plates, or the deterioration of exposed schists.

The excavated headrace tunnel's rock mass is of good quality, except in stretches where there are geological weaknesses, areas of deterioration or larger concentrations of rocks containing a lot of mica, in which a reduced number of anchoring bolts were placed.

The rocky surface upon which the remnants of shotcrete were deposited was not adequately washed; that is, in accordance with the technical specifications, 2 to 4 cm-thick layers of concrete, as well as leftover material on the lower sides of the tunnel that dislodge easily were found.

The cement on the headrace tunnel's sill between trap 2 and the upper surge shaft shows signs of wear from erosion measuring several centimeters in some places.

In the stretches excavated with TBM as conventional demolition, a significant lack of supports (bolts and shotcrete) can be seen in stretches that show geological faults, areas of shear, reduction of the rock mass tolerance, and areas with a propensity for the formation of unstable rocky wedges.

There are large accumulations of sediment in places where there is no water, which makes it imperative to establish measures and devices to make it possible to wash off the sediment from the surge shaft in the shortest stoppage time possible for the San Francisco Plant.

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There are subterranean water leaks through geological faults that are connected to the exterior of the rock mass, which is dangerous for the stability of the surge shaft and the upper slope of the Baños-Puyo road."

- Anchoring bolts:

"The number of anchoring bolts installed in open areas of shotcrete and that have geologic fractures is low for supporting the blocks and wedges, especially because it is a project that is permanent in nature and subject to continuous hydraulic pressures. The bolts do not have the appropriate protection, such as antioxidants and support plates, which does not guarantee their performance as permanent supports."

The anchoring bolts should have been placed symmetrically in the places required; however, they are randomly placed and in insufficient numbers to support the fault-ridden rock mass, although in the Hidropastaza files, there are samples of the resin used in the placement of the bolts."

- Voussoirs:

"In the voussoirs installed in areas where it is presumed that the geomechanical features of the rock mass were considered very poor, the injection of backfill was done with granular material without hardener, which has been partially or totally washed off by high-pressure flows and/or during the emptying of the tunnel. There are drains with significant streams or flows of water in which no check valves were installed to prevent the outflow of the water when the tunnel is working under pressure."

- Drains:

"The hoses and pipes installed to drain water flowing into the tunnel do have filters and check valves."

Regarding audits:

The terms of reference of the audit contract establish that the Audit covers the following:

"Letter d) of number 2. Approve the quality program to be used by the Construction Company and conduct follow-up, verifying compliance with it through systematic "spot check" measures in the frequency and for the purposes described in the Quality Assurance Manual."

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Letter f).- Indicates that the audit shall periodically submit reports containing, among other things: "Analysis of the status of the project under execution, touching on economic, financial, and work progress matters. Reports on the results of the quality control check conducted by the Contractor."

Number 3, "Project audit," establishes that during the execution of the project, the audit team will represent Hidropastaza vis-à-vis the Contractor through a constant presence at the worksites, keeping a multidisciplinary technical team so that, among other things, it conducts: "...technical inspection and follow-up of the electromechanical assemblies, issuance of technical reports related to the quality of execution; onsite inspection of the works in general, and in particular of works that require special care...."

To verify the services executed, it shall approve the document titled "Quality Procedure," it shall review the quality control reports produced by the construction company and "The Audit shall repeat some checks in places of higher importance (spot check), pursuant to the frequency established in the Quality Manual."

The stipulations set forth in the transcribed comment were verified by the technical inspection conducted by the control team on the occasion of the special engineering examination of the damages caused to the cooling system and the water filters, and evaluation of the damages that caused the shutdown of the San Francisco Hydroelectric Plant, which demonstrates that the project Construction Consortium failed to comply with the technical specifications related to the headrace tunnel and surge shaft cladding. These are facts that point out that the alleged additional investments made by the Construction Consortium to implement new and better types of supports in response to the geological/geotechnical conditions found during the tunnel excavation, as well as the alleged losses in excavation efficiency due to the necessary procedure to begin placement of the voussoirs, placement of additional anchoring bolts, and application of shotcrete, lack a technical foundation.

Messrs. engineers **Germán Bolívar Anda Naranjo**, Executive President of Hidropastaza S.A., **José Conceicao Santos Filho**; **Hermann Saa Berstein**, **Luis Alfredo Mancero Gallegos**, and **Jorge Emilio Guerrero Hernández**, members of the Board of Directors of Hidropastaza S.A., are held jointly and severally liable because, during their respective mandate periods, they should have had audit reports that would have made possible true and timely knowledge of the failure to comply with the technical specifications of the San Francisco Hydroelectric Plant Construction Contract, [but] failed to demand that the Legal Representative of Asociación FURNAS-INTEGRAL, auditor of the San Francisco Hydroelectric Project, comply with the conditions in the express legal stipulations contained in Article 85 of the Regulation of the Public Contracting Law;

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2022-05-03 14:41

Regulation to Determine the Stages of the Process of Executing Public Works, Article 12, items b) and g); and the Audit Consulting Contract.

[Paragraphs II and III omitted per special instructions]

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[Paragraph IV omitted per special instructions]

RESOLVES:

To **DISMISS** the joint and several civil liability established on February 2, 2010, in penalties 6825, 6826, 6828, 6829, 6831 and 6832, assessed in the amount of **USD 4,700,000** against Messrs. **Consortio Odebrecht–Alston–Va Tech**, through its legal representative, engineers **Germán Bolívar Anda Naranjo**, Executive President of Hidropastaza S.A., **José Conceicao Santos Filho**, engineer **Hermann Saa Berstein**,

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Luis Alfredo Mancero Gallegos; and **Jorge Emilio Guerrero Hernández,** members of the Board of Directors of Hidropastaza S.A.

Notice is ordered given,

For the State Comptroller General

[Signature]

Dr. Eduardo Muñoz Vega
DEPUTY STATE COMPTROLLER GENERAL, Acting

OFFICE OF THE STATE COMPTROLLER GENERAL. A TRUE COPY. I ATTEST.

[Signature]

ACCOUNTABILITY SECRETARY

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